THIS OPINION WAS NOT WRITTEN FOR PUBLICATION

The opinion in support of the decision being entered today (1) was not written for publication in a law journal and (2) is not binding precedent of the Board.

Paper No. 17

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

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Ex parte JACQUES BORDES and MARC FROUIN

_____

Appeal No. 1997-1230
Application 08/274,807[1]

_____

ON BRIEF

_____

Before CALVERT, STAAB and BAHR, Administrative Patent Judges.

STAAB, Administrative Patent Judge.

DECISION ON APPEAL

This is a decision on an appeal from the examiner's final rejection of claims 1-14, all the claims currently pending in the application.

Appellants' invention pertains to a magnetic hard disk platter assembly. Independent claim 1 is illustrative of the

[1] Application for patent filed July 14, 1994.

appealed subject matter and reads as follows:

1. A magnetic hard disk platter assembly for use in a removable hard disk cartridge, comprising:

a hub comprising injection-molded liquid crystal plastic material and having molding accuracies in the range of five to ten micrometers;

a magnetic disk mounted to the hub and having a magnetic coating for the recording of data with a read/write head in a matching disk drive that mates with said magnetic hard disk platter assembly; and

a screw top mated to the hub with twist-locks for securing the magnetic disk to the hub.

A further appreciation of appellants' invention is derived from the following passages found in the specification:

> Another advantage of the present invention is that a hard disk assembly is provided in which the expensive step of machining the critical hub component is avoided because acceptable finished component tolerances can be achieved with liquid crystal plastic when simply injection molded. [Specification, page 2.]
>
> * * *
>
> The fit of the magnetic disk 14 and especially the center opening 15 to the plastic hub 16 and its lip 18 must be precise so that wobble and runout when the disk 14 is rotated are controlled. Conventional metal hubs include a machining step in

> their fabrication. The plastic hub 16 is preferably injection-molded of liquid crystal plastic to five to ten micrometer accuracy using otherwise conventional fabrication techniques. With liquid crystal plastic material and a readily-attained five to ten micrometer molding accuracy, no subsequent machining is required to give good results. [Specification, page 4.]

The following references are relied upon by the examiner as evidence of obviousness:

Cheney	3,917,068	Nov. 4, 1975
Sakaguchi et al (Sakaguchi)	4,847,826	Jul. 11, 1989
Suzuki[2] (Japan)	4-125879	Apr. 27, 1992

Claims 1-5, 8, 9 and 11 stand rejected under 35 U.S.C. § 103 as being unpatentable over Sakaguchi in view of Suzuki.

Claims 6, 7, 10 and 12-14 stand rejected under 35 U.S.C. § 103 as being unpatentable over Sakaguchi and Suzuki as applied in the rejection of claim 1 et al., and further in view of Cheney.

The rejections are explained in the examiner's answer

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[2] Our understanding of this foreign language document is derived from a translation prepared in the Patent and Trademark Office. A copy of said translation is attached to this decision.

(Paper No. 10, mailed May 30, 1996).

The opposing viewpoints of appellants are set forth in the main brief (Paper No. 9, filed April 5, 1996) and the second reply brief (Paper No. 13, filed September 17, 1996).[3]

Opinion

In rejecting claims under 35 U.S.C. § 103, the examiner bears the initial burden of presenting a *prima facie* case of obviousness. *In re Rijckaert*, 9 F.3d 1531, 1532, 28 USPQ2d 1955, 1956 (Fed. Cir. 1993); *In re Oetiker*, 977 F.2d 1443, 1445, 24 USPQ2d 1443, 1444 (Fed. Cir. 1992). "A *prima facie* case of obviousness is established when the teachings from the prior art itself would appear to have suggested the claimed subject matter to a person of ordinary skill in the art." *In re Bell*, 991 F.2d 781, 782, 26 USPQ2d 1529, 1531 (Fed. Cir. 1993) (quoting *In re Rinehart*, 531 F.2d 1048, 189 USPQ 143 (CCPA 1976)). If the examiner fails to establish a *prima*

[3] Appellants' first reply brief (Paper No. 11, filed August 2, 1996) has not been entered. See the examiner's advisory letter (Paper No. 12, mailed August 23, 1996).

facie case, the rejection is improper and will be overturned. *In re Fine*, 837 F.2d 1071, 1074, 5 USPQ2d 1596, 1598-99 (Fed. Cir. 1988).

Sakaguchi, the examiner's primary reference, pertains to a disk cartridge for a disk-shaped recording medium D such as a compact disk (CD). The invention is not limited to compact disks but may be applied to various other recording media in disk form

(column 3, lines 16-25). Sakaguchi's cartridge includes a case comprising a lower half 22 constituting a main housing and an upper half 23 constituting a lid hinged to the lower half. The lid carries a clamp unit 26 comprising a clamper 40 of plastic material and a magnetic plate 41. The magnetic plate of the clamp unit is secured to the clamper by means of retaining projections 42 on the outer periphery of the plate which cooperate with hook means 50 on the clamper. The clamp unit 26 is loosely retained in an opening 53 in the lid by a

cover plate 58 so that the clamp unit is free to rotate relative to the lid. See Figures 9 and 12. In use, a compact disk D is received in the case between the upper and lower halves of the housing (see Figure 12) for driving engagement with a drive spindle assembly 140 of a disk drive unit. To this end, the disk drive unit includes a table member 135 that engages the lower surface of the disk and a magnetic holding member 147 that extends through a central opening 120 of the disk. As explained at column 8, lines 41-53:

> When the disk D is mounted to the disk table 135 in this manner, the magnetic plate 141 secured to the clamper 40 is magnetically attracted by the magnet 146 and the centering surface 56 is engaged with the clamper centering surface 148 of the magnet holding member 147 so that the clamper 40 is attracted onto the disk table 135 with correct centering to the magnet holding member 147. The clamper 40 can be rotated in unison with the disk table 135 with the disk supporting member 57 pushing against the perimeter of the center opening 120 of the disk D to force the disk against the disk table 135 and to clamp the disk D in cooperation with the disk table 135.

According to the examiner (answer, page 5), Sakaguchi discloses a disk cartridge 21 comprising, inter alia, a hub 40 to which disk D is mounted, and a screw top 41 mated to the

hub with a twist-lock for securing the disk to the hub.[4] The examiner concedes that Sakaguchi does not disclose (1) that the hub 40 is made of injection molded liquid crystal plastic material, and (2) that the hub 40 is molded with molding accuracies in the range of five to ten micrometers, as called in for each of the independent claims on appeal. It is the examiner's foundation position however that these differences would have been obvious to one of ordinary skill in the art. Specifically, as to (1), the examiner considers (answer, page 6) that it would have been obvious to make the disk cartridge hub of Sakaguchi of injection molded liquid crystal plastic material in view of Suzuki in order to improve the compression strength of the hub. Concerning (2), the examiner further

[4] Although not specifically disputed by appellants, it is clear that the examiner's findings are, at best, misrepresentative of the teachings of Sakaguchi. In this regard, when the cartridge D of Sakaguchi is received in the drive unit, the disk D is clamped between the clamp unit 26 *as a whole* and the table member 135, rather than between the clamper 40 and the magnetic plate 41 of clamp unit, as implied by the examiner. Accordingly, it is clear that in Sakaguchi the twist-lock connection between the clamper 40 and the magnetic plate 41 is not "for securing the magnetic disk to the hub" as set forth in each of the independent claims on appeal.

considers (answer, page 7) that it would have been obvious to mold the hub of Sakaguchi with molding accuracies in the range of five to ten micrometers as an obvious matter of routine experimentation and/or optimization.

The examiner's position with respect to difference (1) is not well taken. First, Suzuki is directed to a completely different type of recording medium (a cassette tape) and addresses a completely different problem (deformation of the hubs over time due to the compression force of wound tape (translation, page 2)) as compared to Sakaguchi, which is concerned primarily with reducing production costs.[5] Second, there is nothing in Sakaguchi which would indicate that compression strength of the hub (i.e., clamper 40) is of any particular concern, or that increasing its compression strength would be of any particular benefit. Third, Suzuki does not disclose injection molding and it is not clear that it would be feasible to use an injection molding process in

[5] An objective of Sakaguchi is to reduce manufacturing costs by providing a clamp unit 26 wherein the magnetic plate 41 does not require the use of an ultrasonic welding process in order to secure it to the clamper 40 (column 2, lines 3-26).

practicing Suzuki's method, which requires that the liquid crystal polymer be molded and solidified in the presence of a precisely oriented magnetic field in order to achieve the increased compression strength benefit Suzuki desires. Fourth, it appears likely that making Sakaguchi's clamper 40 according to Suzuki's method would complicate production and increase costs, which runs directly counter to Sakaguchi's stated objectives. For at least these reasons, the examiner's foundation position that it would have been obvious to one of ordinary skill in the art in view of Suzuki to make the hub (i.e., clamper 40) of Sakaguchi of injection molded liquid crystal plastic material is not supportable.

In light of the above, we will not sustain the rejection of claims 1-5, 8, 9 and 11 as being unpatentable over Sakaguchi in view of Suzuki.

Concerning the rejection of claims 6, 7, 10 and 12-14 as being unpatentable over Sakaguchi and Suzuki and further in view of Cheney, the Cheney reference additionally applied in this rejection does not overcome the deficiencies of Sakaguchi and Suzuki noted above. Hence, this rejection also will not

be sustained.

Remand

This application is remanded to the examiner for consideration of the appropriateness of new rejections based on whether:

a) the subject matter recited in any of the appealed claims is unpatentable under the judicially created doctrine of obviousness type double patenting over the claims of Patent No. 5,805,379; and

b) the subject matter recited in any of the appealed claims would have been obvious under 35 U.S.C. § 103 over the teachings of prior art as outlined below and other prior art of which the examiner may be aware.

With regard to the double patenting issue, the examiner's attention is directed to Patent No. 5,805,379 issued to Jacques Borders, one of the co-inventors of the present application on September 8, 1998. According to the bibliographic data on the cover sheet of the '379 patent, the effective filing date and the assignee of the '379 patent are

the same as those of the present application.

Claim 1 of the ‘379 patent is directed to a recording platter for a cartridge disk comprising: (1) a disk with a magnetic coating, (2) an injection-molded plastic hub comprising a liquid crystal plastic material having a twenty-five micrometer molding process accuracy, and (3) a hub top for attaching the disk to the hub and for maintaining a center and axial location of the disk on the hub.

Claim 1 of the ‘379 patent does not specify that the hub of the claimed disk has molding accuracies in the range of five to ten micrometers as required by appealed claim 1, nor does claim 1 of the ‘379 patent specify that the hub top is a screw top mated to the hub with twist-locks, also as required by appealed claim 1. The examiner should determine whether or not these differences would have been obvious to one of ordinary skill in the art at the time of appellants’ invention, and if so, enter a new rejection of claim 1, as well as any of the other presently appealed claims as may be appropriate, under the judicially created doctrine of obviousness type double patenting.

As to the obviousness issue, the following prior art references are brought to the examiner's attention for their disclosures regarding the known properties of Vectra A130™, a material acknowledged by appellants on page 4 of the specification to be a liquid crystal plastic material suitable for use in the presently claimed invention. Specifically,

> Patent No. 4,904,364 to Davis is cited for its teaching at column 5, line 64 through column 6, line 5, of Vectra A130 as a suitable material for molding where a very low rate of shrinkage is desired.
>
> Patent No. 4,928,032 to Skoch is cited for its teaching at column 4, lines 34-58, of Vectra A130 as an injection moldable polymeric material that can achieve a high degree of dimensional precision.
>
> Patent No. 5,179,607 to Sellers is cited for it's teaching at column 6, lines 4-39, of Vectra A130 as the preferred material for patentee's device where the material must permit injection molding, provide the required shape, tight tolerances and smooth surfaces for the molded part, and also provide adequate creep resistance to insure stable geometry for long periods of time.

In addition, Patent No. 5,112,078 to Davis is cited for its teaching at column 2, lines 31-41, of Vectra 130 as a moldable liquid plastic polymer material having substantially no shrink rate.

Also, in the description of the prior art in the background section of Patent No. 5,805,379 at column 1, lines 41-45, it is noted that prior art cartridge disks conventionally require the use of finely machined parts having exceptionally close tolerances.

In light of the foregoing, the examiner should consider whether it would be appropriate to enter a prior art new rejection of one or more of the pending claims of the present application based on the above noted teachings and other prior art references pertaining to the construction of the hub of a platter assembly for a magnetic storage disk of which the examiner may be aware. In this regard, in that appellants in this appeal have not specifically argued the claimed twist-lock connection feature of the platter assembly top to the platter assembly hub as a patentably distinguishing feature of the appealed claims over the cited prior art notwithstanding that the applied prior art may not adequately address this feature,[6] the examiner may wish to have appellants clarify the record as to the nature of the prior art platter assemblies

[6] See footnote 2, *supra*.

for disk drives and removable cartridges referred to on page 1, lines 22-31, of the specification, and the conventional metal hubs referred to on page 4, lines 21-26, of the specification.

Summary

The examiner's rejections under 35 U.S.C. § 103 are reversed.

This application is remanded to the examiner under 37 CFR 1.196(e).

This application, by virtue of its "special" status, requires an immediate action, MPEP § 708.01(d).

REVERSED AND REMANDED

IAN A. CALVERT)
Administrative Patent Judge)
)
)
) BOARD OF PATENT

LAWRENCE J. STAAB	)	
Administrative Patent Judge	)	APPEALS AND
	)	
	)	INTERFERENCES
	)	
JENNIFER D. BAHR	)	
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